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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/994,359 | 11/26/2001 | Herfried Karl Wiczorek | DE000208 | 9841 |
| 24737 | 7590 | 04/09/2004 | EXAMINER | |
| PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510 | | | HANNAHER, CONSTANTINE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2878 | |

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|----------------------------------|--|--|
| Office Action Summary | Application No. 09/994,359 | Applicant(s) WIECZOREK, HERFRIED KARL | |
| | Examiner Constantine Hannaher | Art Unit 2878 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on March 17, 2004. These drawings are acceptable.

Claim Objections

2. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 3 no longer recites anything which is not already required by claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Redmayne (GB002167279A) in view of Cusano *et al.* (US004375423A) and Chhabra *et al.* (US006534772B1).

With respect to independent claim 1, Redmayne discloses an x-ray detector module **1** (Fig. 1) which includes a carrier **2** that forms cells **3** arranged in the form of a grid and is made of a material that is essentially non-transparent to x-rays (page 1, line 41) and scintillators **4**. The scintillators **4** provided in the cells **3** in the x-ray detector module of Redmayne emit light in the range of a longer wavelength in response to the absorption of x-rays. Although the scintillators **4** are not described as

a mass of scintillator particles embedded in a binder, such scintillation material is well-known, as shown by Cusano *et al.* The scintillation material described by Cusano *et al.* (column 4, lines 14-15) is applicable to industrial uses (column 8, lines 33-37) as described by Redmayne (page 1, lines 6-8), so in view of the increased optical output identified by Cusano *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the scintillators **4** in the x-ray detector module of Redmayne were a mass of scintillator particles **13** embedded in a binder **15** as shown by Cusano *et al.* (Fig. 2). The approximate equality of the refractive index of the scintillator particles **13** and the refractive index of the binder **15** described by Cusano *et al.* (column 3, lines 4-8, see also Fig. 3) for the emitted wavelength is a value of difference within the claimed range. Cusano *et al.* does not identify the grain size of the scintillator phosphor powder particle size, but Chhabra *et al.* teaches that values in the recited range (column 5, line 22) are known for phosphor particles **64** (Fig. 3) in a carrier **50** with cells **60** (Fig. 2). In view of the optimization achieved by Chhabra *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the grain size for the scintillator particles suggested by Cusano *et al.* was in the recited range.

With respect to dependent claim 3, see the explanation of the rejection against claim 1.

With respect to dependent claim 4, the carrier **2** in the x-ray detector module of Redmayne consists of a metal (page 1, line 41).

With respect to dependent claim 5, the surface of the carrier **2** in the x-ray detector module of Redmayne is provided at least partly with a reflector layer (page 1, lines 55-56). A “highly reflective” material is considered to disclose a value within the claimed range.

With respect to dependent claim 6, Cusano *et al.* teaches a value for the volume of the scintillator particles (column 6, line 18) which touches or overlaps the claimed range.

With respect to dependent claim 7, Redmayne teaches values for the height of the scintillator 4 which are within the claimed range (page 2, line 7-9).

With respect to dependent claim 8, Redmayne teaches an x-ray detector module characterized in that the width (element diameter) as measured in the plane of the array of the cells 3 is smaller than the height (depth) of the cells 3 (page 2, lines 3-9).

With respect to dependent claim 9, the scintillator materials recited are either suggested by Redmayne and Cusano *et al.* or are so well-known as to require no citation.

With respect to dependent claim 10, the x-ray detector module 1 of Redmayne provides a detector for converting photons from the range of the longer wavelength into an electrical signal at least to one side of at least one cell (page 2, lines 17-22).

With respect to dependent claim 12, Cusano *et al.* suggests a method of manufacturing an x-ray detector module (column 3, line 10-14) where a free-flowing mixture of a binder and scintillator particles is densified by one of the recited techniques. Deposition of the mixture into the cells 3 of the carrier 2 of the x-ray detector module of Redmayne would have been obvious to one of ordinary skill in the art at the time the invention was made in view of the desire to achieve the illustrated circular cross-section for cells 3.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redmayne in view of Cusano *et al.* and Chhabra *et al.* as applied to claim 1 above, and further in view of Hoffman *et al.* (US004563584A).

With respect to dependent claim 2, Cusano *et al.* suggests a variety of materials for the binder (column 5, lines 44-49) but not dioxide of titanium. Hoffman *et al.* confirms that TiO₂ is effective in improving light piping (column 3, lines 61-68) so it would have been obvious to one of ordinary skill

in the art at the time the invention was made to have the binder suggested by Cusano *et al.* contain titanium dioxide (the sole requirement of this claim in view of the word “notably”).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redmayne in view of Cusano *et al.* and Chhabra *et al.* as applied to claim 1 above, and further in view of Boone *et al.* (US005712483A).

With respect to dependent claim 11, the cells **3** in the x-ray detector module **1** of Redmayne have a tubular shape (Fig. **1**) but the degree to which they are filled is not specified. Boone *et al.* shows carrier **10**, **22** for an x-ray detector module (Fig. **3**) in which only a sub-volume of the cells contains a scintillator material. In view of the scattered x-ray rejection afforded by the arrangement taught by Boone *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to fill only a sub-volume of the cells **3** of the x-ray detector module **1** of Redmayne with the scintillator material of Cusano *et al.*

Response to Submission(s)

7. Note the failure to identify the replacement sheets of drawings as “Replacement Sheet” as required by 37 CFR 1.121(d) and the reply could have been held non-responsive on this basis alone.

8. Note the failure to supply markings to show all the changes relative to the previous version of at least the paragraph replaced on page 4 and the reply could have been held non-responsive on this basis alone.

9. Note that “(Previously Amended)” is not one of the acceptable status identifiers listed in 37 CFR 1.121(c) and the reply could have been held non-responsive on this basis alone.

10. Applicant’s arguments filed March 17, 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "having a particle size in the range of between 1 nm and 100 nm") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Since the range of grain size disclosed by Chhabra *et al.* overlaps the actual recited range of (1 to 200) nm, indeed, fully discloses half of the recited range, a *prima facie* case of obviousness exists, MPEP § 2144.05, and applicant's reliance on a misstatement of the claimed range is utterly unpersuasive.

For at least the reasons explained above, Applicant is not entitled to a favorable determination of patentability in view of the arguments submitted March 17, 2004.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Constantine Hannaher
Primary Examiner